

CLAIMS

1. A medical device, comprising:
  - a hollow barrel having an open rearward end;
  - a cartridge containing a quantity of fluid;
  - an inner housing slidably displaceable within the barrel, and
    - having an opening for receiving the cartridge;
  - a needle having a sharpened tip in fluid communication with the cartridge;
  - an axially displaceable plunger operable to expel fluid from the cartridge;
  - a first lock releasably retaining the needle in a projecting position in which the sharpened tip of the needle is exposed for use;
  - a second lock releasably retaining the needle in a retracted position in which the sharpened tip of the needle is shielded against inadvertent contact;
  - a biasing element biasing the needle rearwardly; and
  - an actuator manually operable to release the first lock for rearward retraction of the needle into displacement with the second lock, and manually operable to release the second lock for forward displacement of the needle back into the first lock.
2. The medical device of claim 1 comprising a plunger lock for connecting the plunger to the inner housing.
3. The medical device of claim 1 comprising a guide for impeding rotation of the housing relative to the barrel during retraction.

4. The medical device of claim 1 wherein the first lock comprises a radially deformable latch and a first opening on the inner housing configured to cooperate with the latch, and the second lock comprises the radially deformable latch and a second opening on the inner housing configured to cooperate with the latch.
5. The medical device of claim 1 wherein the plunger is connected to one of the barrel and the inner housing, and the cartridge can be removed and replaced with another cartridge without detaching the plunger.
6. The medical device of claim 1 wherein the actuator comprises an axially displaceable sleeve circumscribing the barrel.
7. The medical device of claim 1 wherein the displacing the inner housing rearwardly also displaces the plunger rearwardly.
8. A method for injecting medication from a medical device having a needle with a sharpened tip and an axially displaceable actuator , comprising the steps of:
  - piercing a patient with the needle;
  - injecting fluid into the patient;
  - displacing an actuator to retract the needle so that the sharpened tip is shielded against inadvertent contact;
  - releasably locking the needle in the retracted position;
  - displacing the actuator to re-extend the needle so that the sharpened tip is exposed;
  - piercing the patient a second time with the needle; and
  - retracting the needle a second time so that the sharpened tip is shielded against inadvertent contact.
9. The method of claim 8 comprising the step of providing a biasing

element for displacing the needle rearwardly during retraction of the needle.

10. The method of claim 8 comprising the step of providing a pre-filled cartridge, wherein the step of the injecting comprises injecting fluid from the cartridge.
11. The method of claim 8 comprising the step of providing a lock for releasably retaining the needle in a projecting position in which the sharpened tip of the needle is exposed for use.
12. A medical device for injecting medicinal fluid from a pre-filled container, comprising:
  - a barrel;
  - a needle having a sharpened tip operable between a projecting position in which the sharpened tip projects forwardly from the housing and a shielded position in which the sharpened tip is shielded;
  - a biasing element biasing the needle toward the shielded position;
  - a socket configured to receive the pre-filled container;
  - a needle retainer releasably retaining the needle against the bias of the biasing element;
  - a finger flange extending radially outwardly from the barrel to provide a gripping surface during use of the device; and
  - an actuator adapted to cooperate with the needle retainer to release the needle for retraction, wherein the actuator comprises a gripping surface disposed adjacent the finger flange gripping surface and generally parallel to the finger flange gripping surface to facilitate actuation of retraction by one-hand.
13. The device of claim 12, comprising a plunger adapted to expel

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medicinal fluid from the cartridge during use, wherein the plunger comprises a gripping surface adapted to be grasped in combination with the finger flange to drive the plunger forwardly.

14. The device of claim 13 wherein the actuator gripping surface is configured to cooperate with the finger flange, such that the actuator can be actuated by one hand by releasing the plunger and squeezing the finger flange and actuator together.
15. The device of claim 14 wherein the actuator is a collar disposed around at least a portion of the barrel and the actuator is axially displaceable.
16. The device of claim 14 comprising a lock for locking the needle in the shielded position.
17. The device of claim 12 wherein the needle retainer comprises a radially deformable arm.
18. The device of claim 14 wherein the actuator is configured to cooperate with the needle retainer to displace the needle from the shielded position to the exposed position by squeezing the finger flange and the actuator together.
19. The device of claim 12 wherein the device is operable to displace the needle from the shielded position to the exposed position by pushing on the finger flange to displace the finger flange axially forwardly relative to the barrel.

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2015.06.22